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## ON THE ONTOGENY AND TAXONOMY OF BRAZILIAN *ULOMA* (COLEOPTERA, TENEBRIONIDAE)

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### ABSTRACT

*The larvae and pupae of U. misella Gebien, 1928, from Brazil, São Paulo, Itanhaém, are described. Adults are redescribed and compared with U. pudens Gebien, 1928. A lectotype and paralectotypes of the latter species are designated.*

Since Gebien's excellent paper (1928), the sole available on South American species, only description of new taxa of *Uloma* have been made. Examination of the material deposited at the Museu de Zoologia, Universidade de São Paulo, Brasil, revealed numerous problems of a taxonomic nature, led me to comment on *U. misella* and *U. pudens*, and to describe the immatures of the former. All specimens studied are in the Museu de Zoologia.

The morphology of tenebrionid (*sensu lato*) immatures has already proved to be of high value when defining the status of some groups, as Watt's (1974) paper demonstrates. Skopin (1971) made some considerations on the genera of Ulomini (*s.l.*); I will not try that task in this paper, as it seems that the knowledge of the larvae and pupae of the group is still far from satisfactory.

### *Uloma pudens* Gebien, 1928

(Figs. 1, 4, 9)

*Uloma pudens* Gebien, 1928: 151, 160, fig. 19.

Some morphological characters are discussed under the redescription of *U. misella*.

Four syntypes were examined. One male was designated lectotype, and two females paralectotypes, all in good conditions. A second male, damaged by fungus and without abdomen, proved to be *misella*, and not *pudens*, as labelled.

Material. BRASIL. *Santa Catarina*: Teresópolis, 1 ♂, lectotype, 2 ♀, paralectotypes. *São Paulo*: Cabreúva (Fazenda Morangaba), 1 ♂,

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1.XI.1965, C. Costa col.; Itu (Fazenda Pau d'Alho), 1 ♂, XII. 1960, U. R. Martins col.; Jupuvura, 1 ♂, 3.V.1937, L. Morretes col.

***Uloma misella* Gebien, 1928**

(Figs. 2, 3, 5, 6-8, 10-28)

*Uloma misella* Gebien, 1928: 151, 162.

The original description was based on two specimens from Brazil. The material examined suggests that this species has a widespread distribution. Immatures were collected with imagos in a decaying trunk, about half meter above the ground, in a gallery forest at Itanhaém, São Paulo.

♂: Reddish-brown, elytra sometimes darker. Dorsal side of head strongly punctured, densely microsculptured; ventral side more sparsely punctured and not microsculptured. Pronotum strongly punctured (as or less dense than vertex), densely microsculptured. Pro-, meso- and metasternum densely microsculptured except on median region. Prosternal puncturation less visible than the pronotal one. Meso- and metasternum punctured (except on median region), the punctures larger than on pronotum. Elytron with ten longitudinal rows of punctures (fig. 8): the more suturally placed smaller, restricted to the basal fifth of elytron, the two following joined at their basal extremity, the three subsequents ones with their basal ends near base of elytron, the three following with their basal ends somewhat distant from base of elytron, and the marginal one extending from base to apex of elytron; the apical extremity of the rows may join each other differently in the elytra of a same specimen; surface between rows of punctures very minute but not densely punctured. Epipleural puncturation less visible than the pronotal one. Abdominal sternites III-V fine but distinctly punctured; puncturation on sternites I-II indistinct, obscured for longitudinal rugulosities. Clypeus flat. Vertex rounded and slightly depressed at the level of the posterior margins of the eyes. Upper lobes of eyes distant from each other 3.5 times their diameter. Apical half of scape thicker than article II; V-XI with numerous circumapical sensorial pits (only visible in clean specimens), small and scarcely visible on XI; VI-X with minute sensorial pits on sides. Last article of labial palpi broadly concave. Pronotum (fig. 7) convex, with one shallow depression at the middle of the anterior region; 1/4 broader than long, maximum width about midway the distance between base and apex; anterior margin slightly concave; posterior margin bisinuate, wider than the anterior one; sides convex; angles rounded. Prosternum between coxae enlarged to apex, maximum width shorter than the diameter of procoxal cavities. Elytra about 2.5 times length of pronotum; humeral denticle (fig. 8) developed; surface between rows of punctures convex. Abdominal sternites (at median region): I a little longer than II, III-IV about half the length of II, V about the same length of I. Anterior femora not surpassing anterior margin of head; middle femora only surpassing posterior margin of metasternum; posterior femora surpassing hind margin of third abdominal sternite; inner margin of all femora covered with pale pilosity (sparse, almost indistinct on the anterior ones). Anterior tibiae strangulated at the basal fourth, inner margin

somewhat projected about midway the distance from base to apex, covered with dense pilosity on apical half of inner margin. Middle tibiae (fig. 2) long, slender, broader on apex and bent on about  $2/5$  the distance from base. Hind tibiae (fig. 5) long, slender, broader at apex; outer margin almost straight; inner margin slightly arcuate, sometimes almost straight. Inner margin of middle and hind tibiae covered with pale, sparse pilosity. Last article of tarsi subequal in length to the preceding ones together. Tip of aedeagus as in figure 10.

♀: Last article of labial palpi not concave. All abdominal sternites distinctly punctured. All femora lack the pilosity on the inner margin. Anterior tibiae not specially enlarged, inner margin not projected. Middle tibiae (fig. 3) shorter, somewhat robust, inner and outer margins almost straight. Inner and outer margins of hind tibiae (fig. 6) straight.

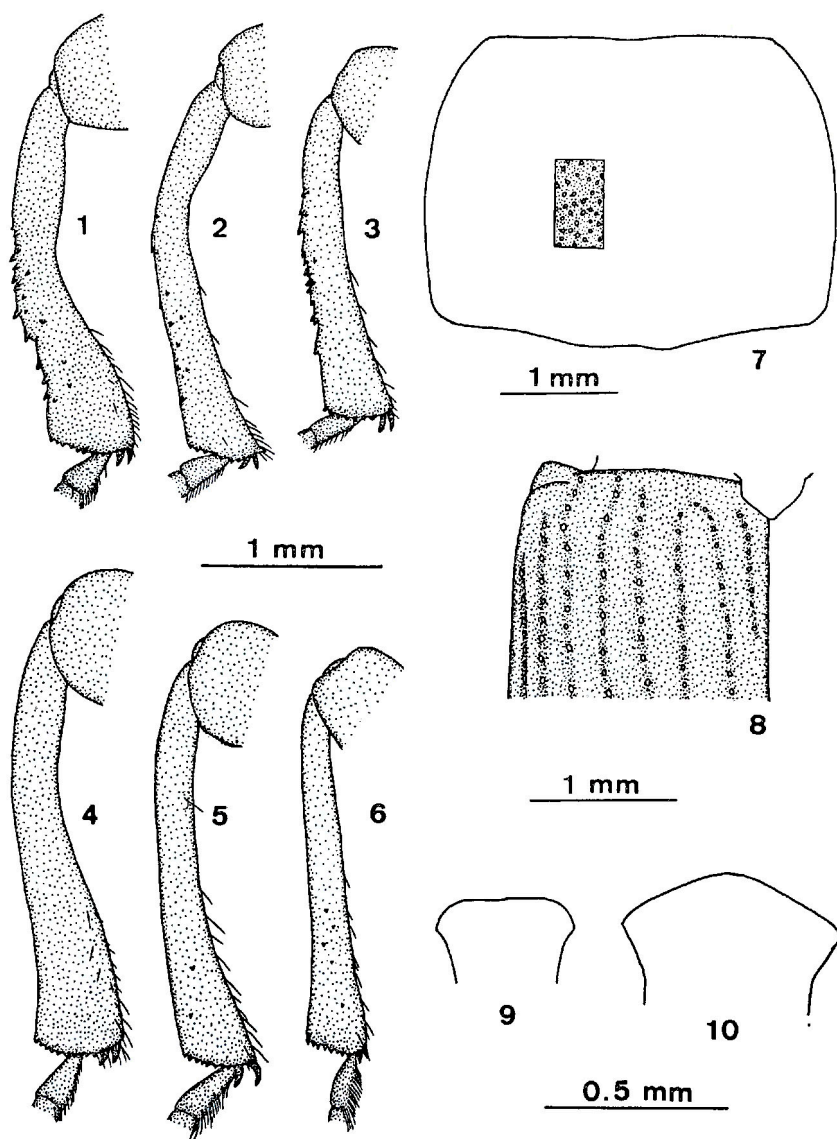
*U. misella* is related to *U. pudens*, of which I have examined the types, as well as other specimens. It seems that some of the characters considered by Gebien (1928) as useful for distinguishing the two species are variable: puncturation on pronotum, mentum and S-like shape of the foretibiae. Males of *pudens* are easily distinguished by their middle tibiae (fig. 1) (short, recurved at the middle and enlarged from this point to apex), hind tibiae (fig. 4) (distinctly enlarged from the middle, the inner margin sinuate), and puncturation on abdomen (all sternites distinctly punctured); also the pronotum of *pudens* is less microsculptured, with a distinct and broad square depression at the middle of the anterior region, and the distance between the upper lobes of the eyes is a little less (3 times, or less, than their diameter) than that of *misella* (3.5 times their diameter). The male genitalia is a very useful character to distinguish the two species, as the specimens frequently die with its tip (figs. 9, 10) exposed, but other species of the genus may present the same patterns. Females of *pudens* are very difficult to distinguish from those of *misella*; the two characters observed are the less distinct pronotal microsculpture and the less distant upper lobes of the eyes of *pudens*.

Measurements, in mm. Length, 7.2-9.2; length of pronotum, 1.9-2.4; width of pronotum, 2.7-3.1; length of elytra, 5.2-6.3; width of elytra, 3.1-3.9.

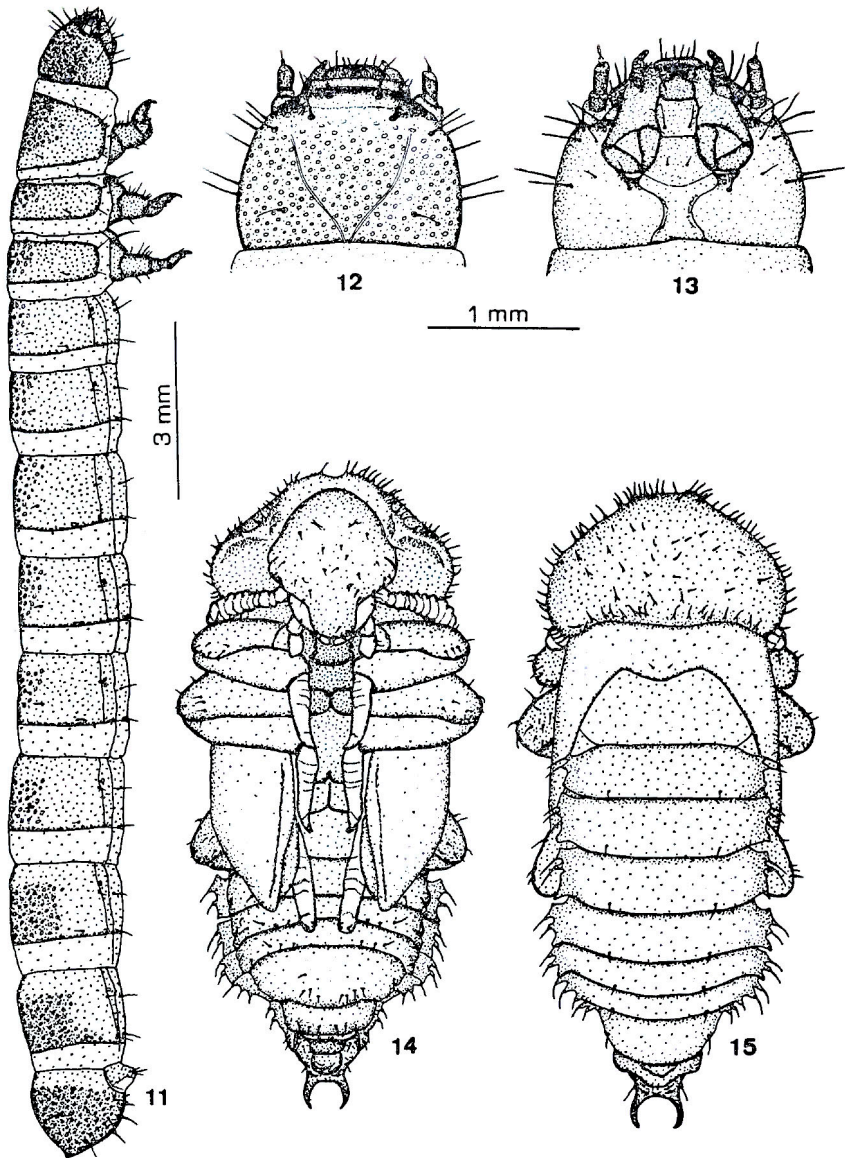
Material. BRASIL. 1 ♂, syntype of *U. pudens*. Minas Gerais: Lambari, 1 ♂, XI.1924, J. Halik col.; Serra do Caraça (Engenho; 800 m), 1 ♂, XI.1961, U. R. Martins col.; Vila Monte Verde, 1 ♂, 15.XI.1965, J. Halik col. Paraná: Ponta Grossa, 1 ♂, 1 ♀, XII.1938, C. A. Camargo col. São Paulo: Itanhaém (Cidade Santa Júlia), 2 ♂, 3 ♀, 18-31.VII.1977, L. R. Fontes & S.A. Marques col.; São Paulo (Instituto de Botânica), 1 ♂, 2 ♀, 3.IX.1974, Expedição MZUSP col.

#### DESCRIPTION OF LARVA

Worm-like (fig. 11), yellowish. Antennae, mouthparts, dorsum of head and dorsum of abdominal segments 8-9 darker. Ninth abdominal segment with two upturned apical spines (figs. 11, 16, 17). Chaetotaxy as in figs. 11-13, 16, 17; chaetotaxy of ventral face of abdominal segments 1-6 like that of the ventral side of segment 7.



*U. pudens*: 1, right mesotibia, ♂; 4, right metatibia, ♂; 9, tip of male genitalia. *U. misella*: 2, right mesotibia, ♂; 3, right mesotibia, ♀; 5, right metatibia, ♂; 6, right metatibia, ♀; 7, pronotum, ♂; 8, left elytron, ♂; 10, tip of male genitalia. At the same scale: 1-6; 9-10. Drawings of *pudens* based on sample from Cabreúva (1; 4) and from Jupuvura (9); of *misella* based on samples from Itanhaém (2; 3; 5-8) and Ponta Grossa (10).



*Uloma misella*, larva: 11, lateral; 12, head, dorsal; 13, head, ventral. Pupa: 14, ventral; 15, dorsal. At the same scale: 11, 14-15; 12-13.

Head (figs. 12, 13) exserted, prognathous, broader than long. Frontal arms V-shaped, incomplete. Epicranial stem and endocarina absent. Ocelli absent. Antennae (fig. 20) 3-segmented; I without bristles; II with three small circumapical bristles; III with three small circumapical and one long apical bristle; sensory appendix absent. Clypeus sclerotised, transverse, with four long bristles (the lateral pair shorter). Anteclypeus membranous, transverse. Gula elongate, broad anteriorly, moderately narrowed in the middle, fused to postmentum. Nasale and hypostomal rods absent. Labrum (figs. 25, 26) free, transverse, with several bristles. Mandibles movable, asymmetrical; articulatory apparatus composed by ventral condyle and the dorsal acetabulum. Left mandible (fig. 22) with four apical teeth and three lateral bristles; mola developed, with transverse ridges. Right mandible (fig. 21) with three apical teeth and four lateral bristles; mola developed, without ridges. Retinaculum absent. Maxillae (figs. 23, 24) well developed, strongly movable; articulating area large; galea and lacinia fused; mala broadly rounded, fused to stipes; uncus absent; cardo with two pieces. Maxillary palpi 3-segmented; II with one long bristle near apex; III with several small apical bristles. Labium (figs. 19, 27, 28) with distinct ligula, prementum-I and prementum-II. Ligula transverse, with two long bristles and some smaller ones; apex lobed. Prementum-I elongate, with two long bristles near base. Prementum-II broad at base, with two short basal bristles. Labial palpi 2-segmented: II with several very small apical bristles. Hypopharynx (figs. 27, 28) well developed.

Head, thorax and abdomen approximately of the same width.

Mesothoracic spiracles elliptical. All legs (fig. 18) similar, spinose, with a few bristles. Coxae developed; femur, specially of the anterior legs, narrowed.

Abdomen cylindrical; tenth segment (figs. 11, 16) reduced, not visible from above and without projecting lobes. Abdominal spiracles subequal, rounded, about half the length of the mesothoracic ones. Anal opening transverse.

Measurements, in mm, of one mature larva

Length, 17.9; width, 2.0.

Head: length (from apex of labrum), 1.8; width (greatest), 1.6.

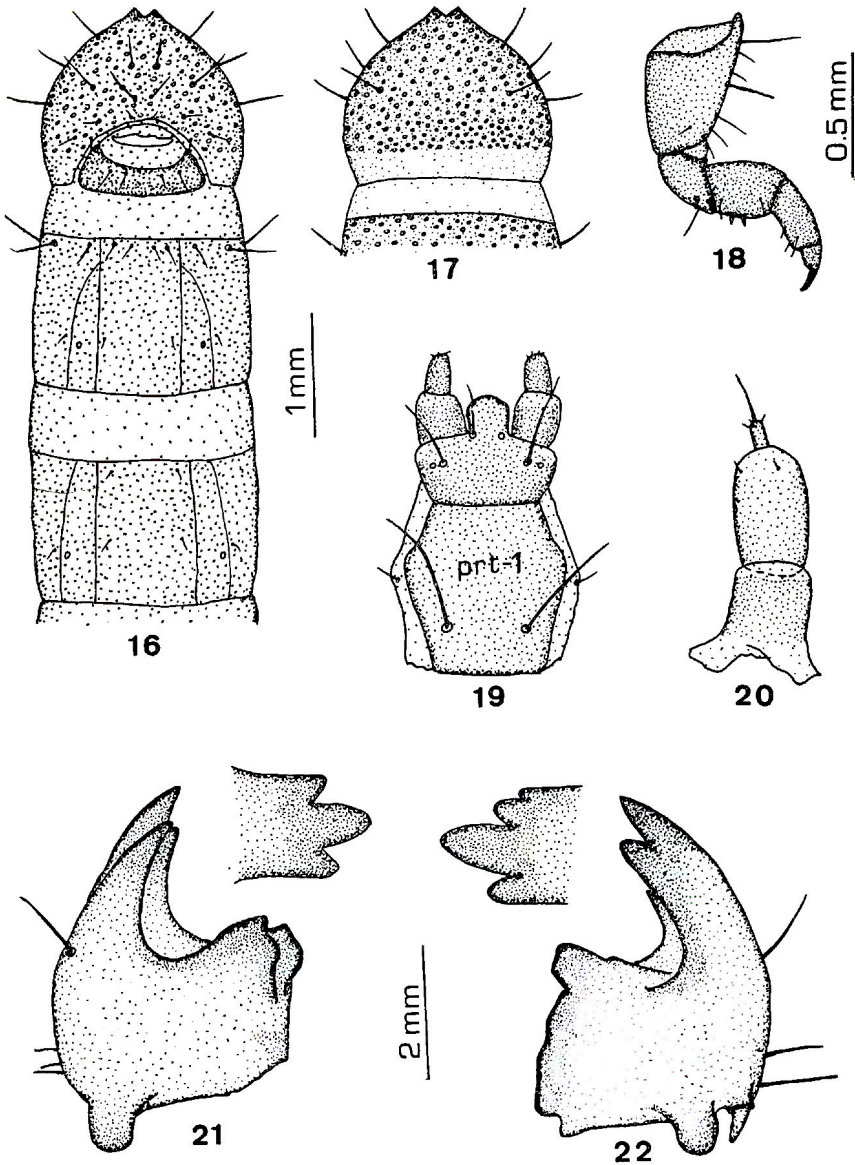
Thorax: length, 3.7; width, 1.9. Lengths of segments, 1.7 : 0.95 : 1.1. Widths of segments, 1.9. Diameter of coxal cavities: pro-, 0.26; meso-, 0.26; meta-, 0.30. Distance between coxal cavities: pro-, 0.48; meso-, 0.60; meta-, 0.52. Spiracles: longest diameter, 0.15; shortest diameter, 0.11.

Abdomen: length, 13.7; width, 2.0. Length of segments 1-8, 1.16 : 1.12 : 1.42 : 1.55 : 1.70 : 1.81 : 1.90 : 1.70. Segment 9: length, 1.38; width, 1.70. Segment 10: length, 0.60; width, 1.12.

Pupa as in figures 14 and 15.

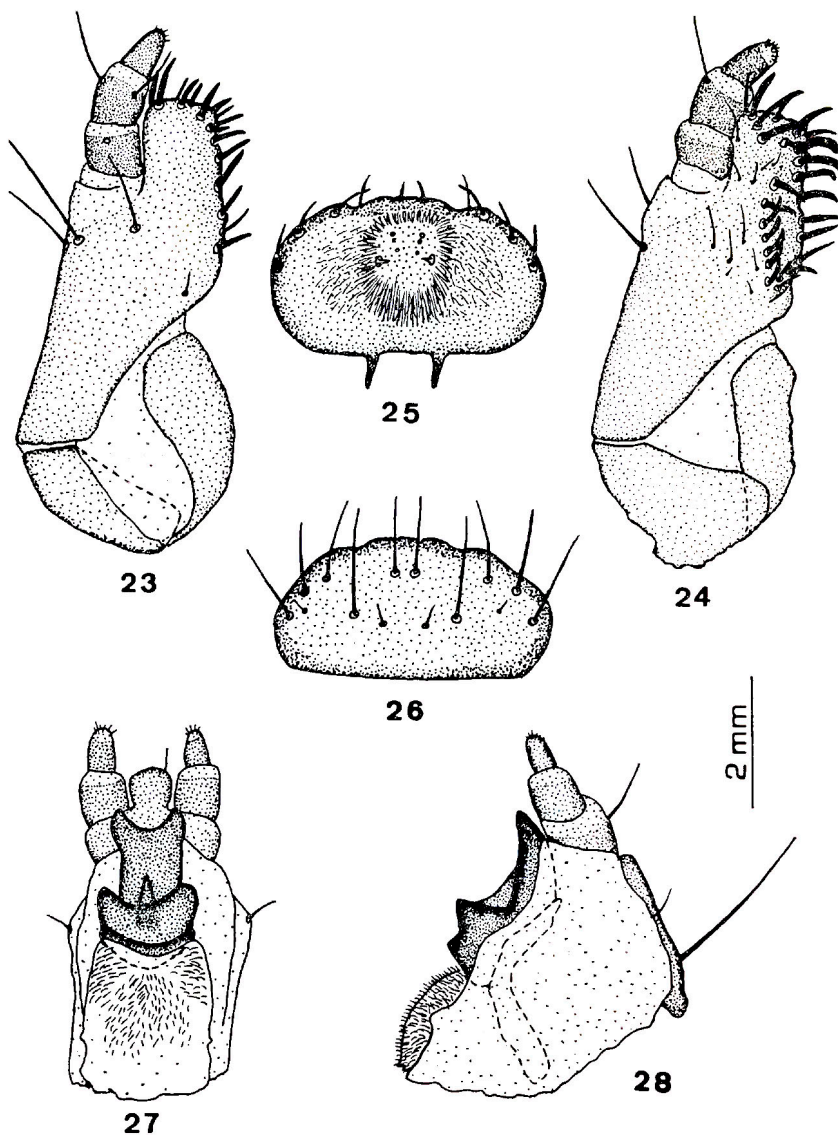
#### ACKNOWLEDGEMENTS

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*Uloma misella*, larva: 16, abdominal segments 7-10, ventral; 17, abdominal segment 9, dorsal; 18, left metaleg; 19, labium (prt-I, prementum-I); 20, antenna; 21, right mandible, ventral, and apex, frontal; 22, left mandible. At the same scale: 16-17; 19-22.





*Uloma misella*, larva: 23, right maxilla, ventral; 24, left maxilla, dorsal; 25, labrum, ventral; 26, labrum, dorsal; 27, hypopharynx and labium (part), dorsal; 28, hypopharynx and labium, lateral. All figures at the same scale.



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